

Remarks

Applicant has carefully reviewed the application in light of the December 17, 2004 Office Action. To advance prosecution, Applicant has amended claims 6, 12, and 14 to further clarify the currently claimed concept. Applicant has also added claims 29-34 to explicitly claim certain inventive aspects. Applicant submits that all of the currently pending claims are in condition for allowance and respectfully requests same.

Examiner Interview

Applicant thanks the Examiner for conducting a telephonic interview with their attorney, William R. Borchers, on February 18, 2005. During the interview, Applicant's attorney and the Examiner discussed the limitations of claim 1 with respect to U.S. Patent No. 817,153 issued to Barr ("the '153 patent") and U.S. Patent No. 2,915,087 issued to Kruschik ("the '087 patent"). The Examiner indicated that claim 1 was probably allowable over the '153 patent but was uncertain as to whether claim 1 was allowable over the '087 patent. Thus, no agreement was reached.

Section 102 Rejections

The Examiner rejects claims 2-3, 6, 8-10, 14, and 16-17 under 35 U.S.C. § 102 as being anticipated by the '153 patent. Office Action pg. 2. The Examiner additionally rejects claims 4-6 and 12-14 under 35 U.S.C. § 102 as being anticipated by the '087 patent. Id. Applicant disagrees.

To anticipate a claim under § 102, a reference must teach each and every limitation of the claim. M.P.E.P. § 2131. Furthermore, the elements in the reference must be arranged as the limitations in the claim. Id. The '153 patent, however, fails to teach at least one limitation in each of claims 2-3, 6, 8-10, 14, and 16-17. Additionally, the '087 patent fails to teach at least one limitation in each of claims 4-6 and 12-14. Thus, these patents do not anticipate any of the claims.

Claim 6 is an independent claim containing limitations not taught by either the '153 patent or the '087 patent. Claim 6, as amended, recites:

A valve comprising:

a valve body defining an interior cavity in communication with a first fluid passage and a second fluid passage, the volume of the cavity substantially equally distributed about a central axis;

a tubular throttling cage in the cavity and in communication with the first fluid passage, the tubular throttling cage positioned such that an annular volume is defined between the throttling cage and a wall of the cavity and having a plurality of flow ports arranged about a perimeter of the throttling cage, wherein fluid flows between the first fluid passage and the second fluid passage through the throttling cage, a longitudinal axis of the throttling cage is positioned offset from the central axis of the cavity, and all the flow ports alter the direction of fluid flow towards the second fluid passage; and

a plug closely received in the throttling cage and moveable about the longitudinal axis to selectively cover the flow ports thereby restricting flow between the first fluid passage and the second fluid passage.

Nowhere, however, does the '153 patent or the '087 patent teach that "all the flow ports alter the direction of fluid flow towards the second fluid passage." In fact, the '153 patent teaches that the two front lateral ports 30 alter the direction of flow away from outlet connection 9. FIG. 2. Applicant notes the Examiner's assertion that because lateral ports 30 of the '153 patent inherently direct flow and all of the flow goes to the outlet connection, the lateral ports direct flow to the outlet connection. Office Action at pg. 2. But the Examiner is overlooking the effect of valve chamber 7 on the flow. Applicant submits that lateral ports 30 could direct flow in any direction and valve chamber 7 would convey the flow to outlet connection 9. Thus, there is no incongruity in lateral ports 30 directing flow away from outlet connection 9 but the flow proceeding to outlet connection 9, and the Examiner's assertion suffers from a fatal flaw in its cause-and-effect reasoning. The '153 patent, therefore, fails to teach all of the limitations of claim 6.

The '087 patent teaches a spacer having a lower ring 4 and an upper ring 6 connected by three main cross members 7-9 and three auxiliary cross members 10-12. col. 2, ll. 29-48; FIG. 2. The cross-sections of all of cross members 7-12 are rounded, but the cross sections of auxiliary

cross members 10-12 are substantially smaller than of main cross members 7-9. *Id.* The lateral ports between auxiliary cross member 11 and main cross member 7 and between main cross member 7 and auxiliary cross member 10, however, do not "alter the direction of fluid flow towards the second fluid passage." If anything, main cross member 7 alters the direction of flow in the wrong direction (i.e., away from the outlet passage). Also, the small size and rounded cross section of auxiliary cross members 10-11 has little, if any, effect on fluid flow. Applicant notes the Examiner's assertion that because the lateral ports of the '087 patent inherently direct flow and all of the flow goes to the outlet passage, the lateral ports direct flow to the outlet passage. Office Action at pg. 3. But the Examiner is again overlooking the effect of the valve chamber on the flow. Applicant submits that the lateral ports could direct flow in any direction and valve chamber 18 would convey the flow to the outlet passage. Thus, there is no incongruity in the lateral ports directing flow away from the outlet passage but the flow proceeding to the outlet passage, and the Examiner's assertion suffers from a fatal flaw in its cause-and-effect reasoning. The '087 patent, therefore, also fails to teach all of the limitations of claim 6.

Claims 2-5 and 8-10 depend from claim 6 and, hence, contain all of its limitations, which have already been shown to distinguish over the '153 patent and the '087 patent. Claims 2-5 and 8-10 also contain additional limitations to those in claim 6. Because the patents fail to teach all of the limitations of claim 6, they surely fail to teach all of the limitations of claim 2-5 and 8-10, which contain limitations in addition to those in claim 6. For at least these reasons, Applicant asserts that claims 2-5 and 8-10 are allowable in view of the '153 patent and the '087 patent.

Claim 14 is another independent claim containing limitations not taught by the '153 patent or the '087 patent. Claim 14, as amended, recites:

A fluid flow control device, comprising:

a flow body having an internal chamber;

a first fluid passage intersecting the chamber;

a second fluid passage intersecting the chamber;

a tubular member residing in the internal chamber, the tubular member being in communication with the first fluid passage and having a plurality of fluid ports, wherein all of the fluid ports alter the direction of fluid flow towards the second fluid passage; and

a plug adapted for movement in an interior of the tubular member to selectively cover a portion of the ports;
wherein an annular volume between the tubular member and the flow body is smallest opposite the second fluid passage.

For the reasons discussed with respect to claim 6, however, nowhere does the '153 patent or the '087 patent teach that "all of the fluid ports alter the direction of fluid flow towards the second fluid passage." Thus, the patents fail to teach all of the limitations of claim 14.

Claims 12-13 and 16-17 depend from claim 14 and, hence, contain all of its limitations, which have already been shown to distinguish over the '153 patent and the '087 patent. Claims 12-13 and 16-17 also contain additional limitations to those in claim 14. Because the patents fail to teach all of the limitations of claim 14, they surely fail to teach all of the limitations of claims 12-13 and 16-17, which contain limitations in addition to those in claim 14. For at least these reasons, Applicant asserts that claims 12-13 and 16-17 are allowable in view of the '153 patent and the '087 patent.

Added Claims

Applicant has added claims 29-34 to explicitly claim certain inventive aspects. Claims 29 and 32 specify that, "to alter the direction of fluid flow towards the second fluid passage, the side walls of the flow ports [fluid ports in claim 32] are substantially straight and angled with respect to radial lines from the center of the tubular throttling cage [tubular member in claim 32] that intersect the side walls at the inner surface of the tubular throttling cage." Neither the '153 patent nor the '087 patent teaches that, "to alter the direction of fluid flow towards the second fluid passage, the side walls of the flow ports are substantially straight and angled with respect to radial lines from the center of the tubular throttling cage that intersect the side walls at the inner surface of the tubular throttling cage." In fact, the '087 patent specifically teaches that the walls of all the cross members 7-12 are rounded. col. 2, ll. 42-43. Furthermore, as the Examiner implicitly finds, main cross member 7 and auxiliary cross members 10-11 are not angled. Office Action at pg. 2. Claims 30-31 and 33-34 depend from claims 29 and 32, respectively, and are allowable at least for the reasons expressed with respect to those claims. For at least these

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reasons, Applicant submits that claims 29-34 are allowable in view of the '153 patent and the '087 patent.

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Conclusion

Applicant submits that a good faith effort has been made to advance the prosecution of this application and that the application is now in condition for allowance. If, however, the Examiner thinks that a telephone conference may advance prosecution, Applicant requests that the Examiner contact the below-listed attorney.

Applicant does not believe that this paper requires any adjustment in fees. If, however, Applicant is mistaken, please apply any charges or credits to deposit account 06-1050, with reference to the above attorney docket number.

Respectfully submitted,

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